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ABSTRACT

This memorandum report consists of 14 task listings resulting from the Vocational Competency Measures Project. (The Vocational Competency Measures Project was a test development project that involved the writing and verification of task listings for 14 vocational occupational areas through over 225 interviews conducted in 27 states.) Provided in the report are task listings for the following occupations: agricultural chemicals application technician, farm equipment mechanic, computer operator, word processing specialist, grocery clerk, hotel (motel) front office personnel, dental assistant, physical therapist assistant, fashion and fabric sales and sewing, electronics technician, restaurant service occupations, water and wastewater treatment technician, diesel mechanic, and carpenter. The task listings include general concepts and tasks, job-specific tasks, and, where applicable, safety procedures. Attached to each task listing are references from which the initial task inventory was derived. (MN)

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MEMORANDUM REPORT

Task Listings Resulting from the Vocational Competency Measures Project

Prepared under
Contract No. 300-79-0735
with
Office of Vocational and Adult Education
U. S. Department of Education
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American Institutes for Research
Palo Alto, California 94302

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As part of the Vocational Competency Measures (VCM) Project, task inventories were developed in each of 14* occupations selected for initial test development. The content of each task inventory was gathered from several sources, such as previously developed task inventories, textbooks, and other training material. The complete task inventory for each occupation was then structured as a survey instrument for use during interviews with supervisors and job incumbents across the country. The number of interviews for each occupation ranged between 12 and 25. Altogether, our task verification phase involved over 225 interviews in 27 states and the District of Columbia.

All respondents were asked to rate each task with respect to how often it was performed on the job on a four-point scale, and its importance to the overall job on a three-point scale. The two ratings were then summed, with responses from supervisors given added weight. The findings of the task verification surveys served as a basis for developing vocational competency measures.

The following lists of job tasks have been prepared based on the findings of the VCM task verification survey. Because this listing is intended for use as a source of possible instructional areas, a somewhat more liberal criterion for inclusion was used than that used in selecting tasks to be included in the VCM tests. All tasks that received an average rating of "2" or more on the seven-point scale (combined frequency and importance scales) have been included. This means that tasks that were considered of moderate importance are included in the list, as well as those considered of low importance, if they were performed at least monthly.

Attached to each task listing are references from which the initial task inventory was derived. These references, combined with the task listings, should provide useful information for the development and review of training programs.

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*During the process of test development, two tests were divided so as to increase their flexibility and the number of programs for which they would be appropriate. These were: Fashion/Fabric Sales and Sewing, which was divided into three tests: Apparel Sales, Fabric Sales, and Custom Sewing; Water/Wastewater Technician was divided into Water Treatment Technician and Wastewater Treatment Technician.

Task inventories for the following occupations are provided:

Agricultural Chemicals Applications Technician

Farm Equipment Mechanic

Computer Operator

Word Processing Specialist

Grocery Clerk

Hotel (Motel) Front Office

Dental Assistant

Physical Therapist Assistant

Fashion/Fabric Sales and Sewing

Electronics Technician

Restaurant Service (Waiter, Waitress, Cashier)

Water/Wastewater Treatment Technician

Diesel Mechanic

Carpenter

Task Inventory for

AGRICULTURAL CHEMICALS APPLICATIONS TECHNICIAN*

General Tasks

Set up applicator equipment using shop manuals

Compute basic calculations

Pick up and deliver chemicals

Pick up and deliver applicator equipment

Maintain power tools

Safety

Warn persons prior to application of hazardous chemicals

Instruct employees and/or customers in safe working procedures

Match safety equipment to chemicals used

Check respirators for fit and effectiveness

Inspect protective clothing (gloves, goggles, etc.) before using

Perform safety checks on applicator equipment

Decide on safe weather conditions for application

Insure that procedures follow product directions

Maintain proper storage conditions (moisture, temperature, etc.)

Recognize pesticide poisoning symptoms

Chemical Mixing

Assess compatibility and select chemicals for specific problems

Select mixing method

Select adjuvants: wetting agent; adhering agent

Compute proportions of active ingredients required

Determine amounts of chemicals to be applied

Measure volume of chemicals

Weigh chemicals

Mix chemicals and carrying agents

*Based on 19 interviews in the following states: California, Georgia, Montana, New York, and Utah

Task Inventory for

AGRICULTURAL CHEMICALS APPLICATIONS TECHNICIAN

Chemical Mixing (cont.)

Prepare fertilizer-chemical mixtures

Load chemicals in tanks and hoppers

Consulting and Problem Recognition

Identify weed and weed seeds commonly found in crops grown locally

Identify and classify insects and insect damage

Identify seed-borne diseases

Identify soil deficiencies based on plant symptoms

Recognize symptoms of common pest damage to crops

Recognize symtoms of fungi or bacteria

Recognize symptoms of plant damage due to:
(a) chemical selection
(b) application errors

Take soil samples

Recommend fungicide program (timing, type, rate, method)

Recommend insecticide program (timing, type, rate, method)

Recommend insecticide program (timing, type, rate, method)

Recommend fertilizer program (timing, type, rate, method)

Recommend treatments to adjust pH to appropriate levels

Explain to customers the effect of chemical application:
(a) harvest delay
(b) reentry delay
(c) effects on plants or pests

Refer customers to sources of consultation and analysis on chemicals and pests

Equipment Preparation and Repair

Set up or assemble equipment received from factory

Determine discharge rate required

Equipment Preparation and Repair (cont.)

Calibrate volume, pressure, and output of equipment

Adjust mixing apparatus to maintain proper solution quality

Adjust equipment to achieve desired distribution pattern

Select and match nozzles for equipment type and application pattern

Adjust nozzle pressure for various pesticide applications

Repair and maintain equipment:
- (a) sprayer _____
- (b) duster _____
- (c) spinners or spreaders _____
- (d) band applicators _____
- (e) fumigators _____

Equipment Operation

Operate granular-type chemical application equipment

Operate dust-type chemical application equipment

Operate:
- (a) tractor-mounted sprayers
- (b) self-propelled sprayers
- (c) wheel-mounted draw sprayers

Use the following nozzles:
- (a) flat fan
- (b) even fan
- (c) flooding
- (d) boomless
- (e) off-center
- (f) solid cone
- (g) hollow cone

Operate specialized equipment:
- (a) high-pressure sprayers
- (b) air-blast sprayers
- (c) low-volume "mist blowers"

Operate fumigator equipment:
- (a) low-volatility liquid
- (b) gas-type

Implement application pattern (broadcast, directed spray, band treatment, pre- or post-emerge)

Regulate speed of application

Regulate rate of application discharge

Task Inventory for

AGRICULTURAL CHEMICALS APPLICATIONS TECHNICIAN

Equipment and Chemical Storage

Drain systems prior to storage

Flush closed systems of residues

Remove dirt and residue from hoppers, deflectors, fans, etc.

Dispose of chemical containers

Dispose of unwanted chemicals

Store unused chemicals

Clerical/Customer Service

Calculate service and materials charges

Prepare charge and cash billing forms

Receive checks, cash, or purchase orders

Prepare sales tickets or receipts

Maintain freight records

Verify bills of lading

Post order forms for deliveries of products and services

Maintain security of merchandise and equipment

Order, reorder, and receive merchandise

Compute costs and expected returns in use of different chemicals

Handle customer complaints

References for

AGRICULTURAL CHEMICALS APPLICATIONS TECHNICIAN

Agrichemicals Label Manual. E. I. Du Pont de Nemours & Co. (Inc.) Wilmington, DE, 1973

Fundamentals of Machine Operation: Crop Chemicals. John Deere Service Publications, Moline, IL., 1976

EPA. Safe Storage and Disposal of Pesticides, 1978

EPA. Some Answers on the Certification of Pesticide Applicators.

Curriculum and Instructional Materials Center. State Dept. of Voc & Tech. Ed., Stillwater, OK Agriculture II - Student Material (Has section on Ag. Chem.)

Task Inventory for

FARM EQUIPMENT MECHANIC*

General Equipment Tasks

Assemble machinery from drawings

Identify parts from drawings

Set up machines using shop manuals

Preservice machinery

Operate steam cleaner or high pressure washer

Pick up or deliver machinery

Assembly, Adjustment, Repair of Equipment

Planting and tillage equipment:

Calibrate planter for row width and seed count

Remove and replace furrow openers

Set up/assemble grain drill

Clean and service grain drill for storage

Set up/assemble planter

Adjust planting depth on planter

Install fertilizer hose

Select and install correct seed plates

Calibrate hydraulic transport and leveling system

Clean and service planter for storage

Install and service no-till coulters

Service and adjust feed drills:

a. fluted
b. double run

Repair and adjust fertilizer drill

Calibrate planter fertilizer rate

Set up plow

*Based on 25 interviews in the following states: California, New York, Ohio, Oklahoma, and Wisconsin

Assembly, Adjustment, Repair of Equipment (cont.)

Assemble cultivator

Align sweeps

Adjust sweeps for trailing and furrow filling

Service and adjust tandem disc

Set up folding gangs

Set up carrier for cultivators

Set up spring or spike-tooth harrow

Set up rotary hoe

Clean and service plow for storage

Combine/storage systems:

Adjust cylinder and concave

Repair thrashing system

Adjust straw walkers

Inspect and repair sickle bar, knives, guards, wearplates

Clean and service combine for storage

Adjust and service boot grain supply augers

Adjust and service cleaning unit

Inspect and service separating unit

Attach platform and grain feeder to separator

Adjust auger height

Remove and replace unloading auger

Adjust rear axle width

Adjust reel speed

Clean and service grain and tailing elevators

Assembly, Adjustment, Repair of Equipment (cont.)

Forage harvesting systems;

Time and test baler

Service and adjust knotter

Assemble baler

Adjust shear bar

Adjust cutting bar

Remove and replace sickle knives, guards, and wear plates

Adjust or replace lifting mechanism

Remove and replace cylinder knives

Replace rake teeth

Install and adjust swath deflectors

Inspect and service auger

Install and service bale injector

Adjust tying mechanisms

Service and repair twine wrapping mechanism

Service hydraulic bale compression system

Adjust for correct bale density and diameter

Repair and replace forage deflects

Adjust or replace inner or outer mower shoe

Install wagon hitch or baler

Service and adjust pickup conveyor

Align strippers with rake teeth

Adjust reel speed

Engines and Electrical

Maintain and repair four-cycle engines

Maintain and repair two-cycle engines

Maintain and repair diesel engines

Maintain and repair transmissions

Reface valves and valve seats

Replace rings

Clean and inspect crankcase

Change oil and filter

Inspect and change coolant

Service:

a. oil bath air cleaner
b. oiled filter air cleaner
c. dry filter air cleaner

Service fuel strainer

Service crankcase

Service batteries and cables

Identify and correct sources of engine oil contamination

Change spark plugs

Clean and regap spark plugs

Replace ignition contact points and condenser

Maintain electrical motors/generators

Repair or replace electrical wiring

Use electrical meters:

a. ohmmeter
b. voltmeter
c. ammeter

FARM EQUIPMENT MECHANIC

Hydraulics

Remove, clean, and replace hydraulic filters

Remove and replace telescoping hydraulic cylinders

Clean and replace hydraulic lines

Identify and correct hydraulic leaks

Replace hydraulic rings

Replace hydraulic fittings

Bleed hydraulic systems

Welding

Perform:

a. arc welding
b. oxyacetylene welding
c. braze welding

Miscellaneous

Maintain pumps and irrigation systems

Read and interpret blueprints/schematics

Cut, ream, or thread metal pipe

Assemble pipe and pipe fittings:

a. plastic pipe
b. copper pipe
c. other metal pipe

Safety

Store and handle solvents and fuels

Install and adjust safety guards on machinery

Select and maintain fire extinguishers

Read and interpret safety signs, symbols, and color codes

References for

FARM EQUIPMENT MECHANIC

California Occupational Guide. Farm Equipment Mechanic.

State Dept. of Vocational & Technical Education, Stillwater, OK. Vocational Agriculture Education Agricultural Mechanics

National Study, HEW, 1974. National Agriculture Occupations Competency Study. (Ag Mech - p. 287)

International Harvester. Setting Up Instructions: grain header, balers, combines (1440,1460,1480, 615,715), corn headers, Conser-till plow, chisel plow + 55 Conser-till attachments, Vibra chisel, Vibra shank cultivator, Mount-O-Matic leaders, drain drill

American Assoc. for Agricultural Engineering and Vocational Agriculture. Selecting and Maintaining Field Mowers, 1966.

Task Inventory for

COMPUTER OPERATOR*

General Concepts

Prepare data for entry into computer

Input data from production records

Test-run new or modified programs

Assist in maintaining, modifying, and developing operating systems or programs

Use utility programs for:

a. sorting data
b. reformatting data
c. writing data to disk, tape, card, or printer
d. initializing tapes
e. allocating space on disk for new files

Generate the following:

reports
special reports
special forms

Storage Media (characteristics and use)

Store and issue data files, programs, and operating procedures for computer processing

Maintain records of files:

a. document location of programs, files
b. maintain documentation

Transfer backup files to and from an alternative storage site(s)

Purge file systems

Prepare card reproductions

Create and store data files

Update records in files

Perform card-to-tape run

Prepare backup data for storage

Load and store tape reels

*Based on 24 interviews in the following states: California, Iowa, New York, and Oklahoma

Storage Media (cont.)

Document tape contents

Load and store disk packs

Document/store card decks

Peripherals and Off-line Equipment

Print special forms (i.e., labels, bills, reports) on printer

Load/operate the following:

80-column keypunch
card reader
automatic card punch
printer
tape drive
disk drive
magnetic character reader
CRT terminal
graphics generating peripheral device: hardcopy devices, terminals
computer console

Perform operator maintenance on:

80-column keypunch
line printers
tape drives

Routine Operations

Power up and power down:

a. computer
b. peripherals

Perform stacked-job processing

Sort data files

Control basic input into data systems

Analyze data processed to assure that desired information was obtained

Load any operating system(s)

Service printer

Clean and condition magnetic tapes

Routine Operations (cont.)

Inventory data processing supplies

Obtain supplies for work area

Coordinate with users and programmers

Clean and maintain work areas

Troubleshooting

Verify output for obvious errors

Detect operational problems:

a. diagnose source of trouble
b. correct the problems in computer and peripherals
c. decide to notify maintenance personnel
d. check equipment after maintenance for proper operation

Check errors with supervisor or programmers

Inform supervisor of repeated errors in input data

Switch to emergency backup procedures or power supplies

Develop operating instructions and techniques to cover problem situations

Deviate from standard procedure to avoid:

a. loss of information
b. waste of computer time
c. downtime of equipment
d. equipment that has failed

The Computer Operator Job

Maintain logs for user charges:

a. computer
b. supplies

Maintain confidentiality of data

Maintain security of computer facility

Maintain system access security

References for

COMPUTER OPERATOR

Occupational Analysis: Data Entry Operator, Colorado State Univ., Ft. Collins (Publication #0A06)

Principles of Business Data Processing, 3rd Edition, Dock & Essick, SRA

U.S. Dept. of Labor Occupational Description, Office of Wages and Industrial Relations, January 1979

Development of Task Performance for a New Office and Business, Education System (NOBELS), Center for Vocational Education, Ohio, September 1972

Descriptive materials - Laney College (Oakland, Calif.) and Monterey Peninsula College (Calif.)

Task Inventory for

WORD PROCESSING SPECIALIST*

Technical Information

Keyboard and print:

a. correspondence
b. reports
c. budgets
d. preprinted forms

Operate standard keyboards

Gain access to systems

Terminate operations

Operate keyboard function keys

Operate blind stations

Operate visual display stations

Develop user defined program sequences

Implement program sequences

Use new hardware and software features

Use reference materials

Queue outputs

Operate storage function controls

Use floppy disks to store, retrieve, and/or duplicate information

Initialize disks

Delete information from storage

Handle and store media

Operate paper handling devices

Operate output device function controls

Use impact printers

Replace ribbon cartridge on equipment

Use telecommunication features

Perform operator maintenance

*Based on 12 interviews in the following states: California, Indiana, and Texas

Technical Information (cont.)

Determine sources of malfunctions

Correct or report malfunctions

Use standard formats for letters, memos, reports, tables, and outlines

Use universal and in-house standard format manuals

Suggest and implement unique formats

Design record processing input and output formats

Interpret coding of format

Compose documents to be formatted

Log in/out jobs

Keep personal production records

File magnetic media and/or hard copy according to established guidelines

Maintain files according to established guidelines

Search log/index to locate documents

Use copy machines

Use editing capabilities of equipment

Regulate controls on transcribing equipment

Judgment

Accept job instructions

Record job instructions

Establish specifications

Establish priorities

Confirm schedules

Handle confidential materials discreetly

Interact with coworkers and supervisors

WORD PROCESSING SPECIALIST

Judgment (cont.)

Interact with originators

Interact with other personnel

Use trade terminologies

Demonstrate equipment to originators

Interpret originators' revisions

Examine documents for visual appeal

Prepare error-free final copy

Update procedures manual

Maintain work areas

Distribute final copies

Receive and send mail

Report supply needs

Clean and maintain equipment

Supervisory

Supervise the word processing center

Supervise clerical support

English

Use correct grammar, spelling, and punctuation

Transcribe from dictation equipment

Transcribe from handwritten copy

Transcribe from typed copy

Use reference materials

Read documents for accuracy

Check documents for format consistency

English (cont.)

Mark corrections legibly

Use proofreaders' marks

Identify errors during playback

Rewrite sentences to obtain correct structure

References for

WORD PROCESSING SPECIALIST

Colorado State, Word Processor: Entry-Level Duties and Tasks chart.

V-TECS. Catalog

Task Inventory for

GROCERY CLERK*

General Procedures

Adhere to company policies and procedures

Adhere to established safety standards

Follow employee policies and procedures

Adhere to union contracts

Perform basic math

Maintain store safety and security procedures

Accomplish job/tasks within defined time limits

Clean merchandise and store

Check status of coolers/refrigerators

Use and maintain store equipment

Use telephone for business purposes

Requisition department supplies

Apply store shoplifting policies

Checking

Apply accuracy in

a. record-keeping
b. time-keeping
c. stock-keeping
d. money-handling

Correct and record pricing errors

Use cash register

Correct cash register errors

Apply taxes to goods sold

Make change

Calculate reimbursements (coupons, bottles, etc.)

Verify check entries and cancel checks

Prepare credit card forms

*Based on 18 interviews in the following states: Alabama, Arizona, California, District of Columbia, and Virginia

Checking (cont.)

Translate universal pricing code into selling price

Bag purchases

Use tax computation charts

Count, collect, and sign for money

Compute single unit pricing

Apply end-of-day closeout procedures

Authorize customer checks

Stocking

Put up signs for advertised merchandise

Determine adequacy of stock for advertised merchandise

Describe products by:

a. cut or type (for meat)
b. kind (for produce)
c. manufacturer
d. brand name
e. grade

Move merchandise forward on shelves

Store deliveries

Maintain stock on shelves

Use scales

Separate bulk quantities into saleable units

Report, store, and dispose of damaged or spoiled merchandise

Check produce for spoilage

Rotate dated stock on shelves

Take stock counts

Change price tags on goods

Package merchandise

Maintain and organize stockroom

GROCERY CLERK

Stocking (cont.)

Place price cards

Write purchase orders

Regularly rearrange merchandise locations

Decide when special pricing is needed

Place merchandise orders

Check merchandise against invoices

Decide on desirable location for displays

Prepare displays

Maintain (restock) display merchandise

Decide on appropriate appearance/style for display

Display associated products together

Decide when displays are to be changed

Decide which products to display

Maintain records for price changes

Inform store buyers about duplicates or requisition items

Customer Relations

Represent the business favorably to customers

Direct customers to advertised merchandise

Assist customers with special needs

Handle customer inquiries

Interpret merchandise information

Handle customer complaints

Maintain flow of checkout traffic

Suggest additional items to customers

Process exchanges and refunds

Customer Relations (cont.)

Inform customers about changes in prices and products

Provide merchandise information for customer protection

Inform customers of substitute items

Direct customers to manufacturers' displays

Interacting with Co-Workers

Communicate with peers

Communicate with management

Use business-like and appropriate speech with co-workers and customers

Follow supervisor's directions

Inform co-workers about product and price changes

Participate in storewide meetings

Voluntarily assist co-workers

Inform co-workers about sales promotions

Give instructions to co-workers

Maintain cooperative working relationships

Compliment co-workers' accomplishments

Help train co-workers

Orient new employees/co-workers

Constructively correct employee errors

References for

GROCERY CLERK

Source	Materials
IDECC, National Office 1166 Chesapeake Ave. The Ohio State Univer. Columbus, OH 43212	STUDENT COMPETENCY RECORD B-6 Food Store - Store Manager B-5 Head Grocery Clerk/Head Produce Clerk B-4 Food Store - Head Cashier B-1 Food Store - Assistant Manager B-2 Food Store Checker B-3 Food Store - Grocery Clerk STUDENT COMPETENCY RECORD - Food Marketing CRFM-01 Entry Level Occupations CRFM-08 Mid-level Occupations
Sales Training Dept. The Quaker Oats Co. Merchandise Mart Plaza Chicago, IL 60654	"Quaker Self Study Program in Retail Food Store Operations" (13 vols., 700 pages, $12.00)

Task Inventory for

HOTEL (MOTEL) FRONT OFFICE*

Front Office Duties

Determine availability of rooms

Recommend room choices within the hotel

Quote appropriate rates

Take room reservation requests and record information

Confirm room reservations by:

a. mail
b. telephone

Cancel reservations

File reservations

Maintain telephone directory of guests

Operate:

a. switchboard
b. computer terminal (in chain-wide reservation system)

Sort and channel guest mail

Record wake-up call requests

Make wake-up calls

Page guests

Inform housekeeping of rooms that have been vacated

Follow up reports of inadequate cleaning

Inform maintenance of needed repairs

Call vendors if cigarette or other machines need refilling

Relay information to front-desk workers on next shift

Arrange use of hospitality rooms for conventions, clubs, etc.

Provide maps, brochures, and other materials

Call taxicabs for guests

Arrange tours for guests

Inform guests of services available

Keep room boards current

*Based on 13 interviews in the following states: California, Massachusetts, Pennsylvania, and South Carolina

Front Office Duties (cont.)

Make suggestions for entertainment and sightseeing

Supply information on scheduled events (activities, meetings, banquets, etc.)

Perform closing procedures:

a. turn off electric display lighting or signs
b. empty cash drawer
c. set burglar alarm

Implement emergency call procedures for:

a. medical doctor
b. police
c. fire department
d. ambulance
e. plumber
f. electrician

Processing Guests

Greet guests

Verify guest reservations

Assist guest in completion of registration card

Time-stamp registrations

Arrange payments from guests

Make out preliminary credit form or secure credit information from guests

Check for advance guest mail and messages

Issue keys

Direct guests to rooms

Arrange transfer of guests to other rooms

See to guests' complaints

Maintain folders of guests' charges

Receive room key/check out guests

Suggest accommodations elsewhere, if needed

Processing Guests (cont.)

Give travel and route directions to guests

Carry out special requests of guests (within hotel policy)

Cashier and Accounting Duties

Operate posting machine

Operate cash register

Operate calculator

Make correct change

Receive, sort, and post charge slips

Make out receipted bills

Make disbursements (for C.O.D.s and similar items)

Authorize personal checks to be cashed

Cash personal checks for guests

Cash travelers' checks and money orders

Receive and store guests' valuables in safe or safe deposit box

Receive deposits on rooms

Post charges on room accounts

Verify accuracy of posted charges

Verify credit or check payments:

a. telephone to obtain credit verification
b. check listing of stolen or canceled credit cards
c. check hotel list of bad credit risks

Finalize settlement of accounts

Give receipts to guests

File completed transactions

Balance cash drawers

HOTEL (MOTEL) FRONT OFFICE

Cashier and Accounting Duties (cont.)

Tally number of rooms occupied

Tally number of people in each room

Post room rates and taxes

Post outstanding charges

Detect and correct errors

Reconcile department totals

Balance daily receipts

Balance advance payments

Prepare audit reports

Send/receive bills for payments due

Prepare bank deposits

File vouchers

Prepare phone charges

Send bills to credit card companies

Management

Plan advertising and sales promotion

Supervise porters

Keep employee time records

Help guests plan banquets, receptions, conventions, etc.

Schedule working hours for housekeeping employees

Make out manager's reports (breakdown of income)

Authorize equipment, supplies, foodstuff purchases

HOTEL (MOTEL) FRONT OFFICE

Source	Materials
DEML, The Ohio State University 123 Townstead Hall 1885 Neil Avenue Columbus, OH 43210	Suggested Curriculum Outline
IDECC	STUDENT COMPETENCY RECORD CRHM-16 Hotel/Motel/Lodging Entry-level Occupations CRHM-17 Mid-level Occupations
	STUDENT COMPETENCY RECORD C-5 Catering Manager C-1 Assistant Manager C-2 Bell Captain C-3 Bellman C-4 Building Superintendent C-6 Chef C-7 Executive Housekeeper C-8 Manager/Executive Assistant C-9 Night Auditor C-10 Purchasing Agent C-11 Recreation Director C-12 Reservation Manager C-13 Room Clerk C-14 Sales Manager C-15 Service Superintendent

Task Inventory for

DENTAL ASSISTANT*

Chairside Assisting

Disinfect and aspirate the field of operation

Maintain sterile field of operation during surgery and restorative procedures

Review patient's chart

Set up equipment tray

Position patient

Perform initial oral inspection

Perform periodontal charting

Apply topical agents

Chart teeth from dictation

Review patient's medical/dental status (history)

Take and record blood pressure

Measure and record pulse rate

Select and plan bite blocks

Retract oral tissue (cheeks, lips, tongue, etc.)

Position suction tip

Apply air during inspection and finishing

Clean and dry teeth

Apply water for rinsing

Prepare syringe

Assemble diagnostic instruments and materials

Pass and receive hand instruments

Pass and receive rotary instruments

Assist with rubber dam application or removal

Assist in suture placement

Polish teeth

Assist with cavity preparation

*Based on 20 interviews in the following states: California, New Jersey, New Mexico, New York, and Oklahoma

Chairside Assisting (cont.)

Assist with administration of local anesthetics

Assist with amalgam and composite restorations

Prepare and deliver dental materials:

a. varnishes
b. cavity liners
c. zinc phasphate cement
d. zinc oxide eugenol (ZOE) cement
e. zinc oxide eugenol (ZOE) impression paste
f. composite (filled) resin
g. silicone elastic impression material
h. plaster impression material
i. wax for occlusal registration
j. zinc oxide eugenol (ZOE) periodontal dressing
k. non-eugenol periodontal dressing
l. amalgam
m. calcium hydroxide base

Medical Emergencies

Maintain equipment for medical emergencies

Recognize emergency symptoms and alert operator/dentist

Perform procedures for maintaining vital functions

Assist in administering required emergency treatment

Sterilization and Disinfection

Prepare instruments for sterilization using the:

a. manual scrubbing method
b. ultrasonic cleaner method

Disinfect instruments using a chemical solution

Operate autoclave

Operate dry heat sterilizer

Disinfect operating equipment and room

Patient Instruction

Orally review preventive instructions with patient

Patient Instruction (cont.)

Cite purpose of specific home care prescriptions and directions

Demonstrate preparation, insertion, or application of material

Explain the role of dental plaque

Evaluate and correct patient's toothbrushing and flossing technqiues

Answer patient's questions

Laboratory Tasks

Take alginate impression

Fabricate acrylic temporary crown restoration

Prepare diagnostic casts

Pour study casts

Perform "bench trim" using lab knife

Finish cast using model trimmer

Radiographs

Expose dental radiographs

Process and mount dental radiographs

Office Management

Order supplies when needed

Rotate supplies with limited shelf life

Store supplies in required environment

Perform preventive maintenance on equipment

Maintain patient records

Maintain patient recall system

Arrange appointments

Assemble and provide the operator/dentist with patient records

Task Inventory for

DENTAL ASSISTANT

Office Management (cont.)

Follow established health and safety standards

Update dental charts

Maintain office security procedures

References for

DENTAL ASSISTANT

Competencies of Dental Auxiliary Functions, ETS Study, Division of Dentistry, Health Resources Administration

Chairside Assisting Skill Evaluation (CASE), DHEW Pub. #(HRA) 78-52, 52A, 52B

Task Listing, Program 607 - White Bear Lake (Minnesota) Area 916 Center

An Analysis of the Dental Assisting Occupation, The Instructional Materials Laboratory, Trade and Industrial Education, The Ohio State University

Task Inventory for

PHYSICAL THERAPIST ASSISTANT*

Office/Administrative Activities

Record treatment activities and progress

Schedule patients

Participate in quality assurance program

Delegate tasks

Read and interpret doctors' orders, progress notes, operative reports, as well as nurses' and social service notes

Participate in PTA student clinical internship or PT student internship

Clean office

Run errands

Treatment-Related

Discuss with doctor, and other health care members, a patient's case (problems, progress, etc.)

Modify patient care plans

Periodically re-evaluate patients

Initiate change in plan of care

Perform edema assessment

Assess wound condition

Recognize acute exacerbations (e.g., inflammation) or contraindications of treatment

Apply emergency procedures

Use aseptic techniques

Apply external dressings, bandages, or supports

Use tilt table

Use wheelchair

Assist in set up and removal of EMG biofeedback equipment

Maintain equipment

*Based on 12 interviews in the following states: California, Indiana, and Texas

Task Inventory for

PHYSICAL THERAPIST ASSISTANT

Massage and Exercise

Perform range of motion assessment

Perform posture analysis assessment

Perform manual muscle assessment

Develop exercise plan of care

Select techniques

Set goals

Select equipment

Administer facilitation techniques (PNF, Bobath, Brunstrom Rood)

Administer Williams' Flexion Exercise

Administer back extension exercise

Administer Codman's Pendulum Exercise

Administer maintenance of function exercise

Administer relaxation exercise

Administer strength exercise

Administer range of motion exercise

Administer endurance exercise

Administer balance and coordination exercises

Administer mat exercise programs

Administer peripheral mobilization techniques under supervision

Administer spray and stretch technique

Administer therapeutic massage

Use P. R. E. equipment

Use bicycle

Use bicycle ergometer

Physical Modalities

Administer infra-red

Administer hot packs

Administer cold therapy

Administer paraffin treatment

Administer whirlpool therapy; set whirlpool temperature

Administer shortwave diotherapy

a. set the dosage
b. select the electrodes

Administer ultrasound

a. set the dosage
b. select time
c. select patient area

Administer ultrasound with electrical stimulation

Administer electrical stimulation

a. select current
b. select the mode of treatment
c. select duration of treatment
d. select intensity

Administer TENS

a. determine placement of electrodes
b. determine frequency and duration
c. regulate current

Administer mechanical traction

a. select technique
b. select equipment
c. select dosage
d. select patient area

Gait Training

Perform gait assessment

Develop gait training program

Develop plan of care

Set gait training goals

Gait Training (cont.)

Select techniques

Select equipment

Instruct patients in gait training techniques

Patient Assistance and Instruction

Plan discharge (i.e., contact social worker, order appropriate equipment, contact home health agency, etc.)

Train patients to use prostheses/orthotheses

Assist patients to put on or take off prostheses/orthotheses

Transfer or position patients

Instruct patients in activities of daily living

Identify architectural barriers and suggest solutions

Instruct patients in breathing exercises

Instruct family members in patient care

Instruct patients in home programs

References for

PHYSICAL THERAPIST ASSISTANT

APTA publication - Competencies in Physical Therapy: An Analysis of Practice. ("Red Book.")

Copy of a draft report on a project supported by the Bureau of Health Manpower of the Public Health Service - carried out by the APTA.

Task Inventory for Fashion/Fabric Sales and Sewing*

APPAREL SALES

General Information

Help customers reach buying decisions (for "line of figure," fit, style, etc.)

Help customers locate sizes

Instruct customers on care of garment materials

Assist customers in finding apparel and accessories

Help coordinate apparel and accessories for customers

Suggest ways to wear accessories

Assist customers in trying on garments

Provide information about current fashions and colors

Identify fiber content of materials for customers

Check garment on individual for proper fit

Describe quality of workmanship for customers

Coordinate garments suitable for specific occasions

Answer customers' questions about merchandise trends and sizing variations

Measure customers

Analyze fitting problems of customers

Offer suggestions for desirable alterations

Chalk-mark or pin garments for alterations

Estimate alteration costs

Determine pick-up date for altered garments

Prepare a tag indicating alterations

Prepare claim checks

Take orders for layaway items

Package customers' purchases

*Based on 17 interviews in the following states: California, Georgia, Illinois, Missouri, and Rhode Island

APPAREL SALES

Sales

Operate cash register

Screen checks for correctness

Approve/obtain approval for checks

Verify/obtain authorization on charge cards

Process charge cards

Handle returns and complaints

Identify ordering needs from stock turnover

Take inventories and stock counts

Receive and check merchandise deliveries

Price-mark merchandise

Restock shelves and racks

Keep stock orderly

Assist in maintenance of store and storage rooms

Plan window and interior displays

Set up and maintain displays

Management

Implement plans to reduce stock shrinkage (shoplifting)

Select items for retail advertising

Coordinate out-of-store advertising with store displays

Determine design trends to be carried by store

Design fashion program for the store

Buy apparel for the store

FABRIC SALES

General Knowledge

Explain information on hang tags and fabric bolts (for shrinkage, stretching, ironing, wearing, care, etc.)

Discuss features and qualities of fabrics with customers

Explain how to prevent colors from running

Calculate amounts of fabric required by customers

Measure and cut fabrics and trims

Answer questions about construction techniques

Interpret charts and graphs on sizing

Locate patterns for customers

Determine correct pattern sizes for customers by:

a. actual measurement
b. commercial pattern sizes

Advise customers on appropriate underlinings and lining fabrics

Advise customers on notions needed for specific garments

Point out types of notions available

Point out types of interfacings and linings available

Provide information about current fashions and colors

Answer customers' questions about merchandise trends and sizing variations

Take orders for layaway items

Package customers' purchases

Sales

Operate cash register

Screen checks for correctness

Approve/obtain approval for checks

Verify/obtain authorization on charge cards

Process charge cards

FABRIC SALES

Sales (cont.)

Handle returns and complaints

Identify ordering needs from stock turnover

Take inventories and stock counts

Receive and check merchandise deliveries

Price-mark merchandise

Restock shelves and racks

Keep stock orderly

Assist in maintenance of store and storage rooms

Plan window and interior displays

Set up and maintain displays

Sewing

Scale patterns up or down in size

Mark and label pattern

Adjust patterns for figure irregularities

Lay out pattern pieces

Sew seams within prescribed tolerances

Apply interfacing, lining, interlining, and backing to garments

Form and stitch pleats

Sew on zippers

Alter the following for proper fit:

a. crotch
b. side seams
c. waist line
d. pants length
e. hem length
f. sleeve
g. shoulder
h. bust

FABRIC SALES

Sewing (cont.)

Repair and replace:

a. zippers
b. pockets
c. buttonholes
d. belt loops
e. linings

Management

Implement plans to reduce stock shrinkage (shoplifting)

Select items for retail advertising

Coordinate out-of-store advertising with store displays

Determine design trends to be carried by store

Design fashion program for the store.

Task Inventory for Fashion/Fabric Sales and Sewing

CUSTOM SEWING

General Fashion Knowledge

Feature and qualities of fabrics

How to prevent colors from running

Calculate amounts of fabric required

Measure and cut fabrics and trims

Construction techniques

Interpret charts and graphs on sizing

Locate patterns

Determine correct pattern sizes by:

a. actual measurement
b. commercial pattern sizes

Select appropriate underlinings and lining fabrics; interfacing

Select notions needed for specific garments

Information about current fashions and colors

Identify fiber content of materials

Sewing

Scale patterns up or down in size

Mark and label pattern

Adjust patterns for figure irregularities

Prepare fabrics for cutting (preshrinking, etc.)

Lay out pattern pieces

Sew seams within prescribed tolerances

Press garment details during construction

Apply interfacing, lining, interlining, and backing to garments

Form and stitch pleats

Sew on zippers

Press finished garments

CUSTOM SEWING

Sewing (cont.)

Measure and fit garments

Analyse fitting problems

Chalk-mark or pin garments for alterations

Estimate alteration time and costs

Alter the following for proper fit:

a. crotch
b. side seams
c. waist line
d. pants length
e. hem length
f. sleeve
g. shoulder
h. bust

Repair and replace:

a. zippers
b. pockets
c. buttonholes
d. belt loops
e. linings

References for

FASHION/FABRIC SALES AND SEWING

Area 916. Test 1 800-806. Recognize Women's Ready-to-Wear Products. (Task #750)

Iowa State University (Irene Beavers). Development of Standards for Textiles and Clothing. (Postsecondary programs)

Texas Education Agency. Approved Occupations for Home Economics Cooperative Education Programs in Texas. Clothing/Fashion Design Guidebook. Apparel and Accessories Careers.

HEW (Irene Beavers). Final Report: Standards for Textiles and Clothing. (Postsecondary programs)

Task Inventory for

RESTAURANT SERVICE (WAITER, WAITRESS, CASHIER)*

Dining Room Activities

Help maintain dining room appearance

Handle customer complaints

Answer telephone

Greet and seat guests

Provide menus and answer inquiries about menu items

Suggest menu items

Take guests' orders and turn in orders

Load and carry trays

Serve courses in correct sequence

Use appropriate serving procedure

Write checks (tabs) and thank guests

Clear tables and wipe off chairs

Clean ashtrays and condiment holders

Respond to guests' requests

Prepare:

a. dessert dishes
b. salads
c. sandwiches
d. beverages

Portion food onto plates

Use:

a. coffee urns
b. roll warmers
c. mixers
d. refrigerators
e. freezers
f. steamers
g. beverage dispensers
h. serving carts/trays

*Based on 14 interviews in the following states: Alabama, California, Illinois, Massachusetts, New York, Pennsylvania, and South Carolina

RESTAURANT SERVICE (WAITER, WAITRESS, CASHIER)

Dining Room Activities (cont.)

Set up station

Restock station

Clean station

Restock condiments on tables

Restock clean dishes and flatware

Restock ice

Set up back bar or side stand

Set up salad bar

Fold napkins

Arrange and clean menus

Fill beverage dispensers

Place decorations in serving areas

Requisition supplies

Cashier Activities

Prepare cash drawers

Accept payments

Operate cash register

Write and add checks (subs)

Process credit card sales

Authorize customers' checks and process

Compute tax

Verify cash in drawer

Verify amount of restaurant checks (subs)

Prepare customer receipts

Cashier Activities (cont.)

Process credit card slips

Prepare deposits

Prepare shift reports

Sanitation and Safety (Knowledge of)

Report equipment needing repairs

Maintain personal hygiene

Keep hoppers empty

Follow procedures to prevent spoilage or contamination of foods

Sanitize surface areas

Sanitize equipment

Check and clean rest rooms

Apply emergency procedures:

a. emit directories for guests
b. fire extinguishers
c. first aid

Check for and report presence of insects and rodents

Report and correct hazards

Assist handicapped guests

Report and store or dispose of damaged merchandise

Check shelf life of food items

General Restaurant Knowledge

Perform periodic inventories and take stock counts

Perform inventory spot checks

Check production sheets

Establish pilferage controls

Task Inventory for

RESTAURANT SERVICE (WAITER, WAITRESS, CASHIER)

General Restaurant Knowledge (cont.)

Predict quantities to be purchased

Select fresh produce

Calculate food costs

Calculate size and number of servings per case

Develop purchasing systems

Check quality of purchased food

Supervisory Functions

Ensure use of standardized recipes

Establish good employee relations

Establish good customer relations

Establish waste controls

Give instruction to proper service

Conduct inspections of ongoing service

Develop menu planning systems

Prepare labor cost summary

Conduct a meal count

Gather information on competitive market conditions

Schedule food preparation

Schedule personnel

Prepare a food cost summary

[illegible] (Waiter, Waitress, Service)

Curriculum: Food Service Production and Service. Vocational Technical Curriculum Coordination (VOTEC), Hilliard, Ohio.

Occupational Analysis: Food Service. Colorado State Dept., Ft. Collins, (Publication Pilot)

Food Service Aid - White River Lake (Minn.) Area Vo-Tech Center

Exploration of Food Management Production and Service Occupation: Performance Objectives and Criterion Measures. Duval County School Board, 1973 (ED 103-993)

Occupational Food Service Education: A Competency-Based Articulation Model. Northwest Ala. Vo.-Tech. Institute, 1974

Vocational Education Program Courses Standards (Food Service). Florida Dept. of Education, July 1974

Task Inventory for

ELECTRONICS TECHNICIAN*

Using General Purpose Test Equipment

Oscilloscopes

Volt-ohmmeters

Function generators

Frequency counters

Resistance decade boxes

Capacitance decade boxes

Power supplies

Transistor testers

Using Hand Tools

Soldering irons

Wire strippers

Crimping tools

Sidecutters

Long nose pliers

Hand drills

Wire wrapping tools

Solder suckers

Solder wicks

Heat sinks

Alignment tools

Troubleshooting

Perform visual inspections

Analyze symptoms

Utilize calibration procedures to isolate faults

Utilize test procedures to isolate faults

*Based on 16 interviews in the following states: California, Florida, Massachusetts, Maryland, and Tennessee

Troubleshooting (cont.)

Isolate faults by tracing and injecting signals

Isolated faults to module levels

Analyze voltage and current measurements

Analyze resistance measurements

Analyze analog circuitries

Analyze digital circuitries

Trace circuits to identify and isolate faults

Conduct in-circuit tests of components

Substitute components to isolate faults

Isolate faults to component levels

Selecting and Replacing Components

Resistors

Capacitors

Inductors

Discrete semi-conductor devices

Transformers

Diodes

Transistors

Display devices

Fabricating Electronic Equipment

Identify random access memories (RAMs)

Identify read only memories

Identify integrated circuits

Follow written and oral instructions

Identify electronic components

Select electronic components

Fabricating Electronic Equipment (cont.)

Handle electronic components

Prepare basic mechanical drawings

Use appropriate types of solder

Apply basic electronic construction techniques

Use general purpose test equipment

Make appropriate adjustments

Clean units

Do performance evaluations

Use appropriate tools

Make appropriate adjustments

Repair printed-circuit boards

Replace defective components

Lubricate units under repair

Clean units under repair

Calibrating Electronic Equipment

Follow manufacturer's calibration procedures

Use specified general purpose test equipment

Locate components

Make designated adjustments

Document calibration data

General Knowledge and Procedures

Adhere to company policies and procedures

Communicate with peers

Communicate with management

Task Inventory for

ELECTRONICS TECHNICIAN

General Knowledge and Procedures

Maintain technical competencies

Use technical terminologies

Keep accurate records

Interact with computer terminals

Adhere to established safety standards

Perform general purpose mathematic and electronic calculations

Read schematics

Follow prescribed test procedures

Use specified test equipment

Interpret test results

Accept or reject equipment

Document test data

References for

ELECTRONICS TECHNICIAN

Occupational Analysis: Electronics Technician (Entry Level), Colorado State Univ., Ft. Collins (Publication #OA17)

Electronics Technician Task Analysis, Instructional Learning Systems, State Dept. of Education, Oregon

Program Description (Electromechanical Technology and Electronics Technology), State Dept. of Education, Florida

Task Inventory for

WASTEWATER TREATMENT TECHNICIAN
WATER TREATMENT TECHNICIAN*

Plant and Equipment Operation

Unload and store chemical additives

Maintain reservoir elevation at specified levels

Load chemical additives into chemical feeding machine

Set dial settings on chemical feeders

Determine if backwashing is needed

Initiate reverse flow of water through filter

Adjust water flow

Measure water pressure

Operate:

a. chlorination systems
b. heating apparatus (to prevent freezing during cold weather)
c. unloading equipment (cranes, forklifts, etc.)
d. mechanical grit removal unit
e. centrifugal and/or positive displacement pumps
f. flow measurement devices
g. pretreatment units (chemical addition)
h. coagulation and flocculation units
i. mechanically cleaned settling tanks
j. Imhoff settling tanks
k. sludge collector and skimmer
l. sludge wasting equipment
m. aerobic digester
n. sludge removal equipment
o. sludge press
p. density meters

Keeping Records

Keep clerical information pertaining to:

a. daily water production
b. amount of water treated
c. amount of water pumped
d. accumulated rainfall
e. chemical and bacterial tests initiated
f. pounds of chemical used
g. average hours of filter runs
h. maintenance performed
i. time keeping

Record raw water instrument readings at intake station or treatment plant

*Based on 13 interviews in the following states: California, Florida, and Massachusetts.

WASTEWATER TREATMENT TECHNICIAN
WATER TREATMENT TECHNICIAN

Keeping Records (cont.)

Record changes in:

a. water level
b. turbidity
c. temperature
d. rate of flow
e. amount of rainfall

Record and maintain log of:

a. chemical dosage
b. chemicals used
c. cost of chemicals used
d. condition of equipment
e. plant rounds

Take inventory of chemicals and equipment

Inspection and Calibration

Inspect piping

Inspect and maintain:

a. gates
b. valves
c. channels
d. weirs
e. bridges
f. screens and comminutors
g. flow indicators
h. pneumatic valve controls
i. chemical feed controls
j. boiler flame scanners
k. spectrophotometers

Calibrate:

a. pH meters
b. turbidimeters
c. pressure indicators

Plant and Equipment Maintenance

Scrape and paint equipment and/or storage facility

Synchronize motor and pump rates

Change charts and/or points on recorders

Check out level in gear driven mechanisms

WASTEWATER TREATMENT TECHNICIAN
WATER TREATMENT TECHNICIAN

Plant and Equipment Maintenance (cont.)

Clean:

a. clarifiers
b. contact plates
c. aerators
d. screens/comminutors
e. sidewalks and channels
f. diffuser plates
g. grease traps
h. chemical feeder and feeder lines
i. baffles
j. weirs
k. scum removal and collector mechanisms

Unclog:

a. sludge lines
b. in-plant sewage lines
c. pumps
d. composite sampler

Align:

a. block bearings
b. drive shafts
c. pumps
d. motors

Change oil/oil filters in motors and pumps

Grease fittings on equipment

Replace broken/worn:

a. motor chains
b. filter elements
c. underground pipes
d. bearings
e. impellers from pumps

Cut, tap, and thread pipe

Check and replace air lines

Bleed air lines

Blow down condensation trap in pneumatic systems

Check operation of sludge gas water burner

Remove scum from wet well components

Remove foreign matter from intake screens

WASTEWATER TREATMENT TECHNICIAN
WATER TREATMENT TECHNICIAN

Plant and Equipment Maintenance (cont.)

Empty settling basin

Empty filter beds

Grease down and clean grit removal unit

Dispose of debris

Grease down screen area

Clean grit chamber

Transport grit to disposal site

Train new hires in maintenance/operation procedures

Sampling and Testing

Collect sample of raw and treated water

Test water by:

a. titration method
b. color comparison
c. gravimetric method
d. bacteria method
e. spectrophotometric methods

Collect sample from chemical feed systems

Determine water:

a. pH level
b. alkalinity
c. turbidity
d. chlorine residual
e. dissolved oxygen level

Sample raw influent

Test for presence of coliform organisms

Label and preserve samples

Measure and record temperature of influent

Decide when a second sample is needed

Collect raw sludge sample and take temperature

References for

WASTEWATER TREATMENT TECHNICIAN
WATER TREATMENT TECHNICIAN

Instructional Materials Laboratory, Trade and Industrial Education, The Ohio State University. An Analysis of the Waste Water Treatment Operator Occupation, OA-II 6478. An Analysis of the Waste Water Treatment Mechanic Occupation, OA-I 5474.

Vocational-Technical Education, Consortium of States, 795 Peachtree Street, NE, Atlanta GA 30308. Occupational Inventory for Water/Waste Water Plant Operators.

Oklahoma Foundation for Research and Development Utilization, Inc., 4400 N. Lincoln, Oklahoma City, OK 73105. Development of Manpower Planning Criteria for Water Supply Systems, October 1974, Appendix B.

Joint Ed. Committee for the California Community Colleges. Wastewater Treatment I, Instructor's Manual (1979). Wastewater Treatment I, Student's Guide (1979).

Contra Costa College course outline for Pollution Control 160. Biochemical Principles of Sewage Treatment. 18 weeks, 3 hours per week.

EPA. Introduction to Environmental Technology Wastewater Technology Vol I, Vol. II A-B.

EPA. Laboratory Control for Wastewater Facilities Vol. III A-C.

EPA. Process Interaction for Wastewater Facilities, Vol V.

EPA. Advanced Waste Treatment, Vol VI.

Water Pollution Control Federation. The New Audio-Tiegel Training Program for Extended Aeration Plant Operators. (Have list of outcomes.) Chlorination Skill Training Package. (Have list of outcomes.)

EPA. EPA IRC Bulletin. (Have back info, contacts training programs, etc.)

Oklahoma Foundation for Research and Development Utilization, Inc., 4400 N. Lincoln, Oklahoma City, OK 73105. Final Report: Development of Manpower Criteria for Water Supply Systems.

EPA/OA. Occupational Inventory for Water/Waste Water Plant Operators. May 1978.

Kirkwood Community College Water and Wastewater Training Center. Survey to establish list of tasks performed by Iowa treatment plant operators.

Task Inventory for

CARPENTER*

General Knowledge and Tasks

Know and apply building codes

Report/correct hazards

Maintain hand tools

Maintain power tools

Maintain surveying instruments and equipment

Build scaffolds

Use scaffolds

Keep time/work records

Clean work areas

Use correct trade terminologies

Surveying Tasks

Set up builders' level

Hold rods

Use hand signals

Shoot grades

Turn corners

Place batter boards

Form Construction and Foundation Layout

Lay out footer forms and column bases

Erect footer forms and column bases

Lay out foundation forms

Erect foundation forms

Construct slab-on-ground formwork

*Based on 14 interviews in the following states: California, Kentucky, Massachusetts, New Mexico, Nevada, and South Carolina

CARPENTER

Form Construction and Foundation Layout (cont.)

Construct entrance platforms and steps

Erect beam forms

Erect column forms

Erect slip forms

Erect pan forms

Flooring and Wall Layouts

Lay out sills

Install sills and sill sealers

Lay out girders, beams, and columns

Lay out floor joists

Lay out special framing

Lay out/install bridgings and blockings

Install subflooring

Lay out plates

Rough openings in exterior walls

Fabricate and install:

a. corner posts
b. wall caps
c. headers
d. carriers
e. rough sills

Install braces

Install sheathing

Erect exterior wall sections

Lay out/erect interior partitions

Install double plates

Install backing for fixtures

CARPENTER

Construction of Ceilings and Roofs

Lay out top plates for ceiling joists

Install ceiling joists

Install purlins

Lay out/install special framings

Lay out/install ceiling bridgings and blockings

Lay out top plates and ridgeboards for rafters

Lay out, cut, and install:

a. common rafters
b. hip rafters
c. valley rafters
d. jack rafters
e. gable end studs

Lay out/install special framings

Lay out/install trusses

Install roof sheathings

Apply roofing felts

Install drip edges, flashings, and valley rims

Install roof caps, louvers, and vents

Install ridgecaps

Install Stairs

Lay out, cut, install:

a. short stringers or horses
b. rough treads

Installing Interior and Exterior Trim

Install:

a. window units
b. door units
c. hardware and weather stripping

Categories

Connecting Industrial and Domestic Pipe

- A. Fasteners
- B. Gaskets
- C. Wall anchors
- D. Screws boards
- E. Bushings
- F. Washers/Grommets
- G. Door seals
- H. Adhesives
- I. Industrial pipe
- J. Plumbing
- K. Compressed Fittings
- L. Plastic and rubber
- M. Galvanized and Steelbrite
- N. Flexible Fittings
- O. Hardware

Insulation

Fuel Insulations

Thermal Insulations

Thermal vapor barriers

Common tools and materials

Related materials for:

- A. Plastering Tools access
- B. Flooring Floors
- C. Flooring metric, settings
- D. Flooring roofs
- E. Roofing
- F. Drains
- G. Connection/Separation rods
- H. Insulation

Saw tools:

- A. Measuring tools, rules, and tapes
- B. Chalk lines
- C. Plumb bob and plumbline
- D. T-squares
- E. Framing squares
- F. Hand saws
- G. Levels and compass
- H. Combos and hatchets
- I. Hand drills
- J. Brace plane and jack plane
- K. Files and rasps
- L. Wood chisels
- M. Screwdrivers
- N. Hand screws and pinchdrivers

See tools (cont.)

n. screw and bar clamps
p. protractor
q. cleaning cloth (abrasive and brushes)
r. hair removing devices
s. portable circular saw
t. rachet and cams
u. electric drills
v. compressed air outlet
w. table circular saw
x. power screw top
y. reciprocating saws
z. hair dryers, power routers, jointers, stud gun

Performing Calculations and Measurements Needed for Layouts and Construction

Perform basic calculations

Read and interpret building plans (foundations, floor, roof, etc.)

Read and interpret planning measurements and symbols

[redacted]

[redacted]

[redacted]

[redacted]

Task Inventory for

DIESEL MECHANIC*

General Knowledge

Maintain tools and equipment

Work safely

Use tools properly

Use test equipment

Understand engine functioning

Use repair manual

Preventive Maintenance - (Procedures for Checking)

Check engine timing

Check oil pressure

Check generator or alternator output

Test cooling system

Test engine compression

Test engine vacuum

Test for cylinder leakage

Test for cylinder balance

Test fuel pump

Check hoses, lines, and fittings

Check filters

Check idle, high idle, stall speed

Check blower drives and timing gears

Check turbocharger/supercharger

Knowledge of Problems and Procedures (Repairing and Installing)

Engines: Rebuild short block

a. remove engine
b. disassemble and clean block
c. mic bearing surfaces

*Based on 12 interviews in the following states: Arizona, California, Maryland, and Minnesota

Task Inventory for

Diesel Mechanic

Engines: Rebuild short block (cont.)

d. remove and replace liners
e. remove and replace cam bearings and bushings
f. install camshaft
g. install crankshaft with new bearings and seals
h. install pistons with new rings and bearings
i. check clearances
j. install cam followers
k. rethread tapped holes
l. replace expansion plugs
m. install covers
n. install vibration damper
o. time engine
p. test engine on dynamometer
q. install engine

Engines: Cylinder heads

a. remove head
b. disassemble and clean head
c. check head for warps and cracks
d. grind valves
e. grind valve seats
f. ream or replace valve guides
g. test valve springs
h. install valve train
i. water test cylinder head
j. install head
k. adjust valves

Engines: Turbocharger (or Supercharger)

a. remove turbocharger/supercharger
b. disassemble and clean turbocharger/supercharger
c. inspect rotors, housing, bearing, and gears
d. assemble turbocharger/supercharger with new parts as required
e. check and adjust clearances
f. install turbocharger/supercharger

Engines: Lube Oil Systems

a. remove oil pump
b. disassemble and clean oil pump
c. rebuild pump
d. install oil pump
e. test oil cooler for leaks
f. change filters

Fuel Systems: Fuel Pump

a. remove fuel pump
b. disassemble and clean pump
c. assemble pump with new parts as required
d. time and calibrate pump
e. install fuel pump

Diesel Mechanic

Fuel Systems: Fuel Injectors

a. remove injectors
b. disassemble and clean injectors
c. assemble injectors with new parts as required
d. flow test injectors
e. adjust injectors
f. install injectors

Fuel Systems: Governors

a. check worn engine rpm
b. remove and install governors
c. disassemble and clean governors
d. assemble governors with new parts as required
e. calibrate governors

Cooling Systems: Radiator

a. remove radiator
b. pressure test radiator
c. flush radiator
d. check cap release pressure
e. install radiator

Cooling Systems: Water Pump

a. remove water pump
b. test pump for coilent leakage
c. rebuild pump
d. install water pump

Cooling Systems: Fan and Thermostat

a. remove fan
b. test thermostatic operation of fan
c. lubricate fan bearings
d. install fan
e. remove and install thermostat
f. test thermostat

Cooling Systems: Belts and Hoses

a. remove and install belts
b. adjust belts
c. remove and install hoses
d. pressure test cooling system

Electrical Systems: Starter and Solenoid

a. remove starter
b. install starter
c. install solenoid

Task Inventory for

Diesel Mechanic

Electrical Systems: Charging Circuit

a. test generator
b. remove generator
c. install generator
d. test alternator
e. remove alternator
f. test regulator
g. replace alternator

Electrical Systems: Battery

a. take specific gravity readings
b. clean terminals
c. test battery amps and volts
d. fill and charge battery

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Diesel Mechanic

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